



## Letter of Notification (LON)

### ***Policy A1.0 New Academic Programs: Approval Process***

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<b>Institution:</b>	East Tennessee State University
<b>Proposed Academic Program:</b>	Prosthetics and Orthotics, Master's
<b>Proposed Implementation Date:</b>	Summer 2022
<b>CIP Code:</b>	51.2307
<b>CIP Code Title and Definition:</b>	Orthotist/Prosthetist

A program that prepares individuals, in consultation with physicians and other rehabilitation members, to design and fit orthoses for patients with disabling conditions of the limbs and/or spine, and prostheses for patients who have partial or total absence of a limb or significant superficial deformity. Includes instruction in biomechanics, gait analysis, pathomechanics, kinesiology, pathology, neuroanatomy, materials science, diagnostic imaging, patient analysis and measurement, impression taking, model rectification, assistive/restorative technology and engineering applications, product finishing, diagnostic and definitive fitting and alignment, power devices, postoperative management, and patient counseling and follow-up.

<b>LON Submission Date:</b>	September 25, 2019
<b>Posted Date on THEC Website</b>	September 26, 2019
<b>Public Comment Period</b>	September 26 – October 10, 2019

#### **Letter of Notification Checklist**

THEC Academic Policy 1.0 (Section 1.0.6A) Letter of Notification Requirements:

- ✓ Letter of Support from the President/Chancellor signifying institutional governing board or system office support for development;
- ✓ Program name, degree designation and CIP code;
- ✓ Proposed implementation date;
- ✓ Academic Program Liaison (APL) name and contact information;
- ✓ Purpose and Nature of Program;
- ✓ Alignment with state master plan and institutional mission;
- ✓ Feasibility Study;
- ✓ Program Costs/Revenues; and
- ✓ Existing Programs Offered at Public and Private Tennessee Institutions.



**East Tennessee State University  
Office of the President**

Box 70734 • Johnson City, Tennessee 37614-1710 • (423) 439-4211 • Fax: (423) 439-4004

September 23, 2019

Mike Krause  
Executive Director  
404 James Robertson Parkway  
Suite 1900  
Nashville, TN 37243

RE: Letter of Notification for a Master of Science (MS) in Prosthetics and Orthotics

Dear Executive Director Krause:

In accordance with THEC Policy A1.0, I am submitting a Letter of Notification for establishing a Master of Science (MS) in Prosthetics and Orthotics degree at ETSU. The ETSU Board of Trustees approved the letter of notification and financial projections (attached) at its September 20, 2019 board meeting. The LON addresses the criteria for review as outlined Sections 1.0.2A1 and 1.0.2A2.

Sincerely,

Brian Noland  
President

Enclosures (1)

cc: Betty Dandridge Johnson, THEC Chief Academic Officer  
Wilsie S. Bishop, ETSU Senior Vice President for Academics/Interim Provost  
Donald A. Samples, ETSU Dean College of Clinical and Rehabilitative Health Sciences



# EAST TENNESSEE STATE UNIVERSITY

## Letter of Notification

Proposed Academic Program Name and Degree Designation

Master's Degree in Prosthetics and Orthotics

Proposed Academic Program Concentrations

None

Proposed CIP Code, Title, and Definition

51.2307      Orthotist/Prosthetist

A program that prepares individuals, in consultation with physicians and other rehabilitation members, to design and fit orthoses for patients with disabling conditions of the limbs and/or spine, and prostheses for patients who have partial or total absence of a limb or significant superficial deformity. Includes instruction in biomechanics, gait analysis, pathomechanics, kinesiology, pathology, neuroanatomy, materials science, diagnostic imaging, patient analysis and measurement, impression taking, model rectification, assistive/restorative technology and engineering applications, product finishing, diagnostic and definitive fitting and alignment, power devices, postoperative management, and patient counseling and follow-up.

Proposed Implementation Date

Summer 2022

Proposed Delivery

Traditional

Academic Program Liaison

Dr. Wilsie S. Bishop  
Interim Provost



# EAST TENNESSEE STATE UNIVERSITY

## Proposal for the MS in Prosthetics and Orthotics Table of Contents

Section	Title	Page
I	Letter of Notification	
A	Program Name, Degree Designation and CIP Code	3
B	Proposed Concentrations	3
C	Proposed Implementation Date	3
D	Anticipated Delivery	3
E	Academic Program Liaison	3
F	Background Concerning Academic Program Development	3
G	Purpose and Nature of Proposed Academic Program	4
H	Alignment with State Master Plan and Institutional Mission	5
I	Need for Program: Feasibility Study	10
	Student Interest	10
	Employer Need and Demand	11
	Local and Regional Need and Demand	13
	Future Sustainable Need and Demand	13
J	Existing Programs Offered at Tennessee Institutions	15
K	Program Costs/Revenue	16
Appendices		
A	Walter Reed National Military Medical Center	20
B	NCOPE Accreditation Candidacy Timeline	24
C	Burning Glass Report	26
D	Feasibility Studies: Student and Employer Surveys	29
E	Letters of Support (8)	36



# EAST TENNESSEE STATE UNIVERSITY

## **A. Proposed Program Name, Degree Designation and CIP Code:**

Prosthetics and Orthotics, Master's Degree, 51.2307

## **B. Proposed Concentrations**

None

## **C. Proposed Implementation Date:**

Summer 2022

## **D. Anticipated Delivery:**

Traditional

## **E. Academic Program Liaison (APL):**

Wilsie S. Bishop  
Interim Provost  
204 Dossett Hall  
P.O. Box 70286  
Johnson City, TN 37614  
(423) 439-4811  
[bishopws@etsu.edu](mailto:bishopws@etsu.edu)

## **F. Background Concerning Academic Program Development**

The College of Clinical and Rehabilitative Health Sciences (CCRHS) currently houses the Doctorate of Physical Therapy (DPT) program and currently has submitted a Letter of Notification to implement a Doctorate of Occupational Therapy (OTD) program. Developing the Master's in Prosthetics and Orthotics (P&O) program provides a full complement of physical rehabilitation programs that are offered within our college. With the current focus in health care on team-based care and ETSU's emphasis on interprofessional education and collaborative

practice, the P&O program adds both breadth and depth to our existing programs and builds on the university's mission to "provide strong, comprehensive educational, research, and service programs in the health sciences that advance the health and wellness of people throughout Tennessee and Southern Appalachia and of rural populations around the world." Additionally, CCRHS has a close affiliation with Mountain Home Veterans Administration Medical Center with our physical therapy, audiology, and speech-language pathology programs. There is high interest in collaborating with the VA to establish a P&O program to serve the need of combat veterans who have suffered limb loss. We have met with Congressman Phil Roe, former Chairman and current Vice-Chairman of the Veterans Affairs Committee, who fully supports this new academic program (please see his letter of support, Appendix E, p. 37). As guests of Congressman Roe, Dean Don Samples and Associate Deans Lynn Williams and Andy Clark toured the Prosthetics and Orthotics Clinic, 3D Medical Applications Center, and the Biomechanics Research Lab at Walter Reed National Military Medical Center in December 2018 (see Appendix A, pp. 20-23). Congressman Roe also arranged for us to meet with Dr. Kenneth Jones, Director of Associated Health Education and Dr. Jason Highsmith, National Program Director for Clinical Orthotist & Prosthetist Service, U.S. Department of Veterans Affairs in Washington, D.C. We discussed collaboration between ETSU and the VA in establishing P&O residencies. They are enthusiastic and supportive of the proposed P&O program at ETSU. We continue to conference with them as we are moving forward in the development of our proposal.

#### **G. Purpose and Nature of the Proposed Academic Program**

The College of Clinical and Rehabilitative Health Sciences proposes to establish a program of study that leads to a clinical master's degree in Prosthetics and Orthotics (P&O). The American Orthotics and Prosthetics Association describes the field of orthotic care to include, but is not limited to, patient evaluation, orthosis design, fabrication, fitting and modification to treat limb loss for purposes of restoring physiological function and/or cosmesis. The P&O health care professional is formally educated and trained to blend technical and clinical skills to care for patients who have neuromuscular and musculoskeletal disorder and/or patients who have a partial or total absence of a limb. Providing custom or pre-fabricated external prostheses and orthoses is unique to the P&O profession.

Professional standards set by the American Prosthetics and Orthotics Association require a master's degree for entry into the labor market. Graduates with this degree are eligible to seek board certification and licensing as a Prosthetic and Orthotics practitioner. This degree would be the first degree of its kind in the state of Tennessee and surrounding Appalachia, and it would be one of the few graduate programs in P&O offered by a public institution in the US.

Graduates of the Prosthetics and Orthotics program will be candidates for employment in a wide range of clinical, educational, and community settings. Currently Tennessee is underserved in prosthetics and orthotics health services (Projections Central, 2019). The geographic location of East Tennessee State University and the absence of any graduate Prosthetics and Orthotics programs in Tennessee combine to create an ideal environment for a

high quality program of study that prepares individuals for career opportunities in this growing field.

#### H. Alignment with State Master Plan and Institutional Mission

The Master Plan for Tennessee Postsecondary Education 2015-2025 calls for a statewide strategic development of higher education programs that increases the educational attainment levels of Tennesseans; addresses the state's economic development, workforce development, and research needs; and calls for institutional mission differentiation to realize statewide efficiencies through institutional collaboration, minimized redundancy, a focus on location, and research.

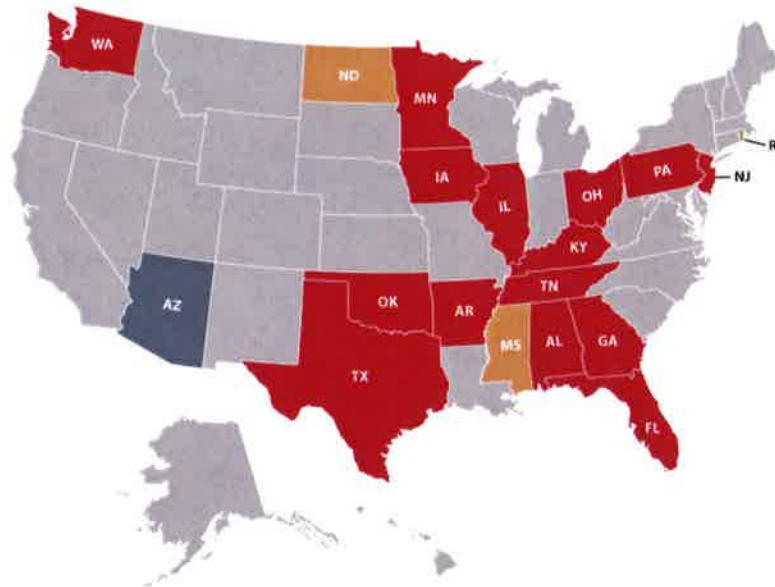
The proposed P&O degree meets the State Master Plan to increase the educational attainment levels of Tennesseans by creating a graduate degree program for immediate entry into Tennessee projected labor categories, provides state of the art rehab care, and contributes to research needs of health and interdisciplinary service.

Prepare Graduates for Fastest Growing Labor Categories	Data supportive of the State Master Plan comes from the Bureau of Labor and Statistics, which projects that the need for orthotists and prosthetists is projected to grow 22% from 2016 to 2026, much faster than the average for all occupations. The demand for P&O professionals is similarly projected to increase in Tennessee with an estimated 22% job growth. Please refer to Appendix C (p. 26) for data from Burning Glass, an analytics software company that provides real-time data on labor market trends.																																														
	Examination of the supply and demand for P&O practitioners between 2016-2025 is provided below from the Dobson/DaVanzo workforce demand projections. As these data indicate, there is a supply/demand imbalance that reflects a clear shortage of workers that is projected to continue to increase between 2016 and 2025.																																														
	<table><tr><th rowspan="2">Category</th><th colspan="3">2016</th><th colspan="3">2025</th></tr><tr><th>Demand of Providers</th><th>Supply of Credentialed Providers</th><th>Demand to Supply Ratio</th><th>Demand of Providers</th><th>Supply of Credentialed Providers</th><th>Demand to Supply Ratio</th></tr><tr><td>Orthotists</td><td>3,731</td><td>3036</td><td>1.3</td><td>4000</td><td>2109</td><td>1.9</td></tr><tr><td>Prosthetics</td><td>1217</td><td>1880</td><td>0.7</td><td>1305</td><td>1376</td><td>0.9</td></tr><tr><td>Prosthetics &amp; Orthotics</td><td>1525</td><td>1680</td><td>0.9</td><td>1635</td><td>1401</td><td>1.2</td></tr><tr><td>Sub-Total</td><td>6474</td><td>6274</td><td>1.0</td><td>6940</td><td>4887</td><td>1.4</td></tr></table>						Category	2016			2025			Demand of Providers	Supply of Credentialed Providers	Demand to Supply Ratio	Demand of Providers	Supply of Credentialed Providers	Demand to Supply Ratio	Orthotists	3,731	3036	1.3	4000	2109	1.9	Prosthetics	1217	1880	0.7	1305	1376	0.9	Prosthetics & Orthotics	1525	1680	0.9	1635	1401	1.2	Sub-Total	6474	6274	1.0	6940	4887	1.4
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The intent of the Focus Act was to empower universities that were former TBR institutions. Of these universities, ETSU is in the best position to impact the regional market and access the southeast high market need. Without a P&O program in the state of Tennessee, the entire workforce of TN P&O practitioners has been educated outside of the state.

The Tennessee Prosthetics and Orthotics Association (TSOP) has worked with Tennessee legislators to create state licensing criteria, and Tennessee is one of only 15 states in the US requiring a license for work. Licensure enables Prosthetics and Orthotics practitioners to open private practices and allow insurance carriers to provide patient coverage for rehabilitation and dispersion of Durable Medical Equipment (DME). This will open up a substantial market that includes children, veterans, victims of trauma, senior citizens, and those in correctional facilities. Fifteen states grant licensure for orthotists and prosthetists, while two additional states have regulatory requirements that professionals be certified by either American Board of Certification (ABC) or Board of Certification (BOC) of Prosthetics and Orthotics. Although neither certification nor state licensure is required to render O&P services in the remaining 35 states and the District of Columbia, only custom-fabricated devices provided by state licensed orthotists and prosthetists, or American Board of Certification of Prosthetics and Orthotics (ABC) and/or Board of Certification (BOC) certified orthotists and prosthetists who practice in non-licensure states, are eligible for Medicare reimbursement. The figure below shows the 15 states in red that require licensure, of which Tennessee is one.



Increased  
Need for

Data supports the State Master Plan to prepare Tennesseans with highly trained P&O graduates who are better equipped to provide state of the art



Rehabilitation	rehabilitative care and contribute to the research needs of the healthcare community. Specifically, According to the US Census Bureau, there is a concern with the increasing number of patients requiring orthotic or prosthetic care and the ability of the present number of certified orthotists and prosthetists to meet that demand. The large baby-boom population is aging, and orthotists and prosthetists will be needed because both diabetes and cardiovascular disease, the two leading causes of limb loss, are more common among older people (Bureau of Labor Statistics). Data supports the State Master Plan to prepare Tennesseans with highly trained P&O professionals who are equipped to provide state of the art rehabilitative care and contribute to the research needs of the healthcare community.
Focus on Inter-disciplinary Education and Collaboration	Data supports the need to provide students with an option to obtain a degree with an interdisciplinary focus and options for collaboration. Healthcare systems are changing, and the healthcare professionals of the future will need to function as part of an interprofessional team. In the proposed P&O curriculum, collaboration will occur within the University between Physical Therapy and the College of Medicine with joint classes planned throughout the curriculum with each of these departments. In addition, there are interprofessional resources and options for both academic and research interactions between this program and PT, Counseling, Social Work, Nursing, and Medicine. The interprofessional curriculum proposed for this P&O program will provide graduates with expertise in each of these key areas (refer to summary information on Student Interest, p. 10). Data from a recent survey conducted among current ETSU college students interested in healthcare also supports development of a degree with interdisciplinary focus (see Appendix D, pp. 29). The majority of those surveyed (67%) indicated they were definitely or somewhat interested in applying to a P&O program at a university that has an interprofessional education (IPE) program with opportunities to learn with students enrolled in other health care programs (i.e., medicine, nursing, pharmacy, PT, etc.)

### Institutional Mission

The proposed Masters of Prosthetics and Orthotics degree aligns with the mission and vision of East Tennessee State University, the Academic Health Sciences Center, and the goals of the College of Clinical and Rehabilitative Health Sciences. ETSU's mission statement highlights the need to "provide strong, comprehensive educational, research, and service programs in the health sciences that advance the health and wellness of people throughout Tennessee and Southern Appalachia and of rural populations around the world." The strategic plan for the Masters of P&O addresses the promise of ETSU's mission and its commitment to excellence in teaching, research, and public service in the health sciences through its inclusion with well-established and fully-accredited graduate programs in physical therapy, speech-language

pathology, audiology, and nutrition as well as accredited undergraduate programs in engineering, radiography, and cardiopulmonary science.

The vision of East Tennessee State University is *developing a world-class environment to enhance student success and improve the quality of life in the region and beyond*. In addition, the University mission includes having *a wide array of educational and research programs and clinical services including a comprehensive Academic Health Sciences Center*. A core value of the University is *efficiency which is achieved through wise use of human and financial resources*. (ETSU Website and Strategic Plan 2016-2026 approved by the Board of Trustees 3-27-17)

Based on the East Tennessee State University Mission, Vision and Strategic Plan as outlined above, the proposed Masters of P&O degree will meet the following objectives:

- Creates a graduate degree program that will contribute to and benefit from the educational and research programs and clinical services available through the Academic Health Sciences Center.

The focus of the ETSU Academic Health Sciences Center includes developing *critical thinking, problem-solving, and diagnostic and treatment skills* as well as educating health professionals *who can work as part of a collaborative care team of professionals to provide the most comprehensive and efficient care possible* (ETSU Academic Health Sciences Center website). Adding a masters in P&O will help to further promote the comprehensive nature of rehabilitation education at East Tennessee State University. The addition of a masters of P&O to the current degrees available in Physical Therapy, Speech-Language Pathology, Audiology, Social Work, Medicine, Nursing, Pharmacy, Engineering, and Clinical Psychology will provide a well-rounded array of clinical career options. Curriculum promoting interprofessional education will assist in developing graduates better prepared to join a collaborative team of health care professionals and innovations of design with engineering.

- Contributes to regional stewardship and wise use of human and financial resources by providing students with an opportunity to obtain a degree at a lower cost than those offered at surrounding private institutions.

Providing an option for P&O degree at a public university makes the degree more financially feasible for many students in this region (see Appendix D, p. 30). Only 38% of P&O degree conferrals in 2017 were from a public university.

In addition to overall tuition costs being lower at a public institution than a private university, East Tennessee State University offers scholarships to assist with decreasing the financial burden of out-of-state tuition. The George L Carter Scholarship awards up to \$14,000 per year for full-time graduate students who reside within a 250 mile radius

of ETSU, and the Sidney G. Gilbreath Scholarship awards up to \$11,000 per year for full-time graduate students who reside beyond the 250 mile radius of ETSU.

As one of the colleges comprising the ETSU Academic Health Sciences Center, goals of the College of Clinical and Rehabilitative Health Sciences include: *To create an academic and clinical culture that encourages service to diverse and underserved populations; encourage collaborative research for students and the community addressing long-term clinical and rehabilitative health needs across the lifespan and health care spectrum; and to promote scholarship and mentoring that supports evidence-based practice and life-long learning* (ETSU Academic Health Sciences Center website and CCRHS website).

The proposed Masters of P&O degree meets the goals of the College of Clinical and Rehabilitative Health Sciences in the following ways:

- Provides students with options for clinical experiences and service to diverse and underserved populations in order to better prepare them to provide rehabilitative services for these populations.

The proposed curriculum will include a number of clinical experiences in a variety of healthcare settings. Students will be prepared to provide clinical expertise in the art and science of prosthetic and orthotics to a wide range of patients. Students within the program will have opportunities to participate in service activities with various population groups. Partnership with regional, state, and national facilities will provide students with a wide range of professional learning experiences. The College of Clinical and Rehabilitative Health Sciences currently has affiliation agreements with >350 facilities for clinical experiences with other rehabilitation professionals. The university will utilize and build on these resources to fulfill clinical education experiences for the P&O program.

- Creates a graduate degree with a curriculum that addresses rehabilitative health needs across the lifespan and supports evidence-based practice and life-long learning.

Courses within the curriculum will address assessment and provision of care for patients across the entire lifespan. Opportunities for collaboration in academic settings, clinical practice, and scholarship are available throughout the curriculum. Content regarding literature review and assessment of evidence for clinical practice will be included. In addition, emphasis will be placed on establishing a platform for professional development of students within the program which will extend throughout their careers.

## **I. Need for Program: Feasibility Study**

A comprehensive study was conducted to evaluate the feasibility of offering a master's degree in prosthetics and orthotics with the final report for the study attached as Appendix B. Pertinent findings are provided below.

Student Interest	<p>To gauge the student interest at ETSU for a proposed Masters P&amp;O program, a student survey was sent to over 1,000 ETSU undergraduate students (1,069 ETSU undergraduate students registered as minors within the College of Clinical and Rehabilitative Health Science in Pre-PT, Pre-OT, Pre-CDIS, Allied Health, and Rehab Sciences, in addition to students in Psych, Human Services, Pre-Health, Exercise Science, and Public Health). A summary of the results are included in Appendix D (pp. 29) and presented below:</p> <ul style="list-style-type: none"> <li>• A total of 70 student responses were received. The majority of the respondents were seniors (35%) followed by freshmen (28%) and juniors (23%).</li> <li>• 60% of students indicated interest in pursuing a master's degree in a P&amp;O program if offered at ETSU. Only 17% were "definitely not" interested in a P&amp;O program.</li> <li>• 88% of respondents expressed the definite preference of a public education over a private option for graduate school option because of lower tuition rates.</li> <li>• 67% of students expressed interest in applying to a P&amp;O program with emphasis in interprofessional education (IPE) and opportunities to learn with students enrolled in other health care programs, such as medicine, PT, nursing, pharmacy, etc.</li> <li>• 70% of students reported interest in matriculating into a P&amp;O program if they were not accepted into their first degree of choice.</li> </ul> <p>The student survey results confirm strong ETSU student interest in this program of study. These data are commensurate with data from the Bureau of Labor Statistics and Burning Glass that the projected job growth is expected to grow much faster than the average for all occupations.</p> <p><u>Competitor Analysis:</u> There are no graduate level Prosthetic and Orthotic programs in the state of Tennessee. The absence of a Master's degree in Tennessee prevents Tennesseans from seeking an affordable, in-state option to complete their education. In order for students matriculating from undergraduate programs to seek employment as a Prosthetic and Orthotic practitioner, they currently need to continue their education</p>
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	<p>out of state.</p> <p>In the Southeast, there are only three institutions that offer a master's in Prosthetic and Orthotics degree: Alabama, Florida, and Texas, making the Academic Common Market a possibility for students from other states.</p>
Employer Need and Demand	<p><u>Labor Market Analysis:</u> Prosthetics and Orthotics practitioners and related professionals will meet a positive labor market outlook over the next 10 years. P&amp;O occupations in Tennessee are projected to grow at a faster rate (22%) than the projected growth for all occupations in the state between 2016 and 2026. Similarly, regional and national labor projections support a positive Prosthetics and Orthotics employment climate.</p> <p>Market demand for Prosthetic and Orthotic practitioners in the region is high. The Bureau of Labor Statistics' (BLS) most recent estimates suggest that orthotists and prosthetists held approximately 8,500 full-time jobs in 2012 and that by 2022 the job prospect for these providers is projected to increase to 11,500 or by 36 percent. The provision of orthoses appears to be the primary driver of our overall demand and supply projections for the P&amp;O profession. Of the total demand for P&amp;O services of 19,126 providers, orthoses services account for almost 92 percent of all demand (17,574 providers). Furthermore, the BLS estimates that there are 10,964 providers delivering orthoses services in 2016.</p> <p><u>Program Demand Forecast:</u> ETSU would be the first higher education institution in Tennessee to offer Prosthetics and Orthotics at the graduate level. Student demand continues to grow as Prosthetics and Orthotics practitioners are being employed to address an expanding number of physical health issues. Prosthetic and Orthotics practitioners are increasingly employed at veteran centers, oncology centers and skilled nursing facilities.</p> <p>ETSU Survey: A survey instrument was sent to nine P&amp;O professionals in the area to assess need in master's Prosthetics and Orthotics programs. A summary of the results are included in Appendix D (pp. 32-35) and are presented below:</p> <ul style="list-style-type: none"> <li>• Three employer responses were received, which was a 33% response rate.</li> <li>• 100% of respondents strongly agreed that there is a need for</li> </ul>

certified Prosthetists and Orthotists in the area.

- 100% of regional employers agreed or strongly agreed that it is difficult to hire certified P&O practitioners.
- 100% strongly agreed that it is difficult to hire P&O professionals with interprofessional experience.
- 100% indicated they would be interested in offering clinical internships to ETSU P&O students.

Below is a list of regional employers, along with Congressman Roe and Dean Depew, who have provided letters of support for the proposed P&O program (see Appendix E, pp. 36-45).

Company	Official	Official Title
U.S. Congress	Dr. Phil Roe	Chairman, Veterans Affairs Committee
Mountain Home VA Medical Center	Dr. Colleen Noe	Associate Director of MHVAMC
Mountain Home VA Medical Center	Mr. John Brothers	Certified Prosthetist and Orthotist (CPO)
Holston Medical Group	Dr. Alan Meade	Director of Rehabilitation Services
TalkBack Pediatric Therapy	Mr. Jon L. Morris	Vice President
Victory Orthotics & Prosthetics	Mr. Zach Smith	Certified Prosthetist and Orthotist (CPO)
Excel Prosthetics & Orthotics	Mr. Chad McCracken	Certified Prosthetist and Orthotist (CPO)
ETSU College of Business and Technology	Dr. Dennis Depew	Dean

These letters of support, along with the survey reports from local employers and practitioners, indicate enthusiastic support for a P&O program that will address a need in Tennessee to offer this degree, especially within an interprofessional team-based college.

Local and Regional Need/Demand	<p>Regional demand for P&amp;O practitioners is higher than the national average. According to the Bureau of Labor Statistics, a 22% projected employment growth increase is expected in Tennessee between 2018 and 2026. Additionally, location quotients provide relevant employment information. The location quotient is the ratio of the area concentration of occupational employment to the national average concentration. According to the BLS, the location quotient for states bordering Tennessee are less than one, indicating the occupation is less prevalent in the area than the national average. A total of seven bordering states, including VA, NC, KY, GA, MS, AR, and MO, have a location quotient below 1, which is well below the national average  <a href="https://www.bls.gov/oes/current/oes291122.htm#(9)">https://www.bls.gov/oes/current/oes291122.htm#(9)</a></p> <p>It is not surprising, then, that P&amp;O programs in closest proximity to ETSU, per their website, have a 100% job placement rate at the time of graduation. Increased regional need indicates there is an increased demand for P&amp;O students who are qualified to meet that need. According to NCOPE, the accreditation body for P&amp;O, the aggregate program data indicate that the trends in enrollment continue to increase from year to year. These trends are expected to continue to rise.</p> <p>Given the regional and national need, it is critical that more qualified students enter P&amp;O programs to assure access to quality care for individuals with amputations and orthopedic impairments. Without a state option for students to pursue this degree, all current P&amp;O practitioners in Tennessee have had to obtain their degree outside the state.</p>
Future Sustainable Need and Demand	<p>Two aspects of the proposed program support the future sustainable need and demand for graduates of this program. One aspect is associated with the changing demographics. A second aspect is connected to the innovative curriculum of the proposed program that focuses on interprofessional practice with occupational therapy (developing program), physical therapy and medicine as well as the university's emphasis on interprofessional education with all health science programs. Each of these aspects is described below.</p> <p><u>Changing Demographics:</u> A number of health trends are contributing to an increased demand for P&amp;O practitioners. According to the American Academy of Orthotists and Prosthetists, these health trends include an increase in diabetes (15.3 million new cases in the U.S. since 1980); heart disease (projected more than a 26% increase by 2030); and obesity (rising with an increase of more than 22% since 1960). The proportion of the population that is at risk for peripheral vascular disease (PVD) and</p>



amputation is expected to increase significantly by the year 2020. The incidence of diabetes and diabetes-related amputation also continues to increase. The number of Americans with diagnosed diabetes is projected to increase 165% by 2050. Of all amputations, 50-70% are diabetes related.

Additionally, with an aging population of 72 million Americans predicted to be in the 65+ age group by 2030, the demand for P&O practitioners is expected to continue. The highest percentage of amputations due to disease occur in the 61-70 year age group, which creates a large proportion of the population at continued risk for those diseases/disabilities requiring orthotic/prosthetic care.

Coupled with these health and aging trends, almost 25% of P&O practitioners are 55 years or older and likely to retire in the next 10 years. This will leave a significant gap for new student applicants to enter the profession.

Innovative Curriculum: Healthcare systems are changing, and the healthcare professionals of the future will need to function as part of an interprofessional team. This proposed degree fosters the application of the four core competencies of interprofessional collaborative practice (roles and responsibilities of health professions, teams and teamwork, ethics, and interprofessional communication). These core competencies are the foundation of ETSU's Interprofessional Education Program, which includes graduate programs from all of the five health science colleges (Clinical and Rehabilitative Health Sciences, Medicine, Nursing, Pharmacy, and Public Health). ETSU is nationally recognized for its IPE Program and recently received the 2018 U.S. Public Health Services Award in Washington, DC from the Interprofessional Education Collaborative (IPEC). In addition to the health sciences, the P&O program will also incorporate coursework within the ETSU Biomedical Engineering Technology program. This IPE emphasis is especially valuable in a P&O program which requires a unique combination of skills. According to the Academy of Orthotists and Prosthetists, the P&O profession is a "blend of science, art, technology, creativity, and healthcare."

Finally, the Burning Glass report's key findings and program demand forecast for P&O nationally provide substantial support for the future sustainable need and demand for the proposed P&O program (Appendix C, pp. 26-28).

- **Student interest and demand are growing with national conferral volumes increasing 151% between 2013 and 2017.** In order to meet

	<p>the state's projected employment growth between over the next ten years, additional graduates are needed each year.</p> <ul style="list-style-type: none"> <li>• <b>Competitive saturation is low for the P&amp;O degree.</b> ETSU would be the first institution in Tennessee to have a P&amp;O program. With only 12 P&amp;O programs in the country, there would not be another program within 400 miles.</li> </ul>
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#### J. Existing Programs Offered at Public Institutions

There are no P&O programs within the state of Tennessee. According to the National Commission on Orthotic and Prosthetic Education (NCOPE), there are 12 accredited Prosthetics & Orthotics programs across the United States. These programs are listed in the table below.

Institution	Location	School Type	Program
Alabama State College of Health Science	Montgomery, AL	public	Master's Degree in Orthotics & Prosthetics
California State University USUDH Orthotic & Prosthetic Education Center	Los Alamitos, CA & La Jolla, CA	public	Master's Degree in Orthotics & Prosthetics
Loma Linda University School of Allied Health Professionals	Loma Linda, CA	private	Master's Degree in Orthotics & Prosthetics
University of Hartford Masters Science Prosthetics and Orthotics	Hartford, CT	private	Master's Degree in Orthotics & Prosthetics
Florida International University College of Engineering & Computing	Miami, FL	public	Master's Degree in Orthotics & Prosthetics
Northwestern University Prosthetic orthotic Center	Chicago, IL	private	Master's Degree in Orthotics & Prosthetics
Eastern Michigan University	Ypsilanti, MI	public	Master's Degree in Orthotics & Prosthetics
Concordia University	St. Paul, MN	private	Master's Degree in Orthotics & Prosthetics Consortium with Century College
University Pittsburgh School Health & Rehabilitation Science	Pittsburg, PA	public	Master's Degree in Orthotics & Prosthetics
Baylor College of Medicine School Allied Health Science	Houston, TX	private	Master's Degree in Orthotics & Prosthetics
University of Texas Southwestern Medical Center Orthotics and Prosthetics	Austin, TX	public	Master's Degree in Orthotics & Prosthetics

Program			
University of Washington School of Medicine and Division of O&P	Seattle, WA	public	Master's Degree in Orthotics & Prosthetics

While about half of these programs are housed in public universities, Burning Glass data indicates that the market share of degree conferrals from public universities is only 38%. Therefore, greater public institution participation is needed to meet the market demand. Of these programs, only two are in the southeast. The closest programs to ETSU are over 400 miles away (University of Pittsburgh and Alabama State University). There is clearly a need for additional P&O programs in the U.S., particularly within the southeast.

According to the American Board for Certification (ABC) in Orthotics and Prosthetics:

- There are currently 74 ABC accredited facilities in Tennessee which are accredited to disperse and fit patients with *orthotics*. These do provide patient care.
- There are currently 77 ABC accredited facilities in Tennessee which are accredited to disperse and fit patients with *prosthetics*. These do provide patient care.
- There are currently 100 ABC certified orthotic practitioners and 100 ABC certified prosthetic practitioners in the state of TN.

Based on these statistics, a P&O program at ETSU would be well placed and would provide an opportunity for certified prosthetists and orthotists working in the state of Tennessee to receive their education in the state.

## K. Program Costs and Revenues

The following section provides details on program cost and revenue for the proposed Master's Degree in Prosthetics and Orthotics at East Tennessee State University (see THEC Financial Projection Form). Seven year projections have been calculated with a 3% annual increase where appropriate. Expenses will begin in year one with the addition of a Program Director, equipment, and other expenses associated with the accreditation process (i.e., consultant pay and travel reimbursement). Tuition and fee revenue will begin in year two pending the implementation of the accreditation process. Institutional reallocations will be necessary in the first two years, and will come from the College of Clinical and Rehabilitative Health Sciences. There will be no federal grants, private grants, nor gifted funds for the establishment of this program. As can be seen from the subsequent data, the proposed prosthetics and orthotics program will have revenue that exceeds expenditures by the third year.

## Expenses

One-Time Expenditures		
Item	State reason for expenditure	Total Expenditure
New/Renovated Space	This degree will require special facilities with renovation or new space for classrooms, labs and faculty offices. These do not include shared lecture spaces with other departments.	\$250,000
Equipment	This degree will require special equipment. Some equipment can be shared with occupational therapy, physical therapy and the IPE facilities. Specific equipment needs include lab tools, machines, and supplies.	\$500,000
Library	This degree will not require special holdings at the library, as they are currently part of their capabilities.	\$0
Consultants	Consultants for internal and external reviews.	\$ 10,000
TOTAL	One-time Expenditures	\$ 760,000
Recurring Expenditures		
Item		Total for Years 7
Administration and Faculty Salary	<p>Program Director will be hired in Y1 at \$90,000 annual salary at a 3% increase annually</p> <p>One faculty starting in Y1, second faculty starting in Y2, and another .5 FTE faculty (shared between departments) will start in Y2. Faculty annual salary of \$90,000 at a 3% increase.</p>	\$1,562,857
Administration and Faculty Benefits	<p>Program Director \$30,350 annual benefits in Y1 with a 3% increase</p> <p>Faculty benefits will be \$30,350 annually increased 3% each year.</p>	\$527,030
Support Staff Salary	Support staff start in Y2 at \$40,000 annually increased 3% each year	\$258,736
Support Staff Benefits	Support staff benefits will be \$20,350 annually increased 3% each year	\$131,632
Operating	<p>Travel: \$4,000 in Y1, \$7,000 Y2, \$8,000 subsequent years</p> <p>Accreditation Dues: \$5,000 Y1 (initial accreditation), \$2,000 subsequent years</p> <p>University Administration: Starting in Y2 at 30% of Total Program Revenue</p>	1,392,098

	Supplies: starting Y2 at \$35,000 annually	
<b>TOTAL</b>	<b>Reoccurring Expenditures</b>	<b>\$3,872,353</b>

### Projected Enrollments

Enrollment is based on an initial cohort of 14 full-time students. The projected number of graduates is 13, which assumes a 95% retention rate (5% attrition rate) from the first year of the program to the third year.

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
<b>14</b>	<b>27</b>	<b>27</b>	<b>27</b>	<b>27</b>	<b>27</b>	<b>27</b>

### Revenues

Item		Total Revenue Seven Years
Tuition and Fees (tuition)	Maintenance fees projected beginning Y2 with a 3% increase  Fees: AHSC \$50 credit + Lab Supplies \$60 credit= \$110 per credit per students	\$3,746,600
Institutional Reallocations	Institutional reallocations will be needed in the first two years of program implementation, provided by the ETSU College of Clinical and Rehabilitative Sciences	\$885,753
Grants	N/A	\$0
<b>TOTAL</b>	<b>Revenues</b>	<b>\$4,632,353</b>

### Expenditure/Revenue Summary

Year	Expenditure	Revenue
1	\$889,350	\$889,350
2	\$516,322	\$516,322
3	\$612,127	\$612,127
4	\$628,241	\$628,241
5	\$644,838	\$644,838
6	\$661,934	\$661,934
7	\$679,542	\$679,542

## References

- 2014 CAAHEP Annual Report. Clearwater, FL: Commission on Accreditation of Allied Health Education Programs June 30, 2014. Available online at: <http://www.caahep.org/documents/file/Publications-And-Governing-Documents/AnnualReport.pdf>.
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- Green, L.V, Savin, S., & Lu, Y (2013). Primary care physician shortages could be eliminated through use of teams, nonphysicians, and electronic communication. *Health Aff*, 32(1):11-9.
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- Institute of Medicine (2011). *Allied health workforce and services: Workshop summary*. Washington, D.C.: National Academies Press.
- Office of Inspector General. CMS has not promulgated regulations to establish payment requirements for prosthetics and custom-fabricated orthotics (OEI-07-10-00410). Washington, D.C.: Department of Health and Human Services October 2012. Available online at: <https://oig.hhs.gov/oei/reports/oei-07-10-00410.pdf>.
- Projections Central (2019). Long-term occupational projections, prosthetics and orthotics (2016-2026). Retrieved from <http://www.projectionscentral.com/Projections/LongTerm>
- Standards and Guidelines for the Accreditation of Educational Programs 7/13/2017.

## Appendix A: Walter Reed National Military Medical Center



**Mr. John Witherspoon**  
**Senior Legislative Assistant**  
**Rep Phil Roe (R-TN), Chairman HVAC**

**Thursday, 6 December 2018**

**1300 OFFICIAL PARTY ARRIVES**

*The Historic Tower Plaza / Building 1*

Greeted by: COL Rod Gonzalez, MC, USA, Chief of Staff, WRNMMC  
Mr. Don Champion, Legislative Director, WRNMMC

**1305 WALKING TOUR – 3D MEDICAL APPLICATIONS CENER**

*President Zone / Building 1 / Fourth Floor*

Peter Liacouras, PhD, Director of Services, 3D Medical Applications Center, WRNMMC

**1330 TRANSITION TO AMERICA ZONE, BUILDING 19**

**1335 WALKING TOUR- MILITARY ADVANCED TRAINING CENTER**

*America Zone / Building 19 / First Floor*

LTC Keith Myers, Deputy Chief, Department of Rehabilitation, WRNMMC  
David Laufer, Service Chief, Orthotics & Prosthetics Service, WRNMMC

**1430 OFFICIAL PARTY DEPARTS**





## Walter Reed National Military Medical Center Bethesda, MD

### 3D Medical Applications Center

The 3D Medical Applications Center (3D MAC) at Walter Reed National Military Medical Center provides Computer Aided Design (CAD) and Computer Aided Manufacturing (CAM) for the fabrication of medical models and custom implants, provides technical support for virtual treatment planning, and provides image captures in support of patient treatment, graduate medical/dental education and research.



The 3D MAC is able to use CAD and CAM in a wide variety of methods, including:

- **Rapid Prototyping** can be accomplished in a variety of methods with a variety of material. Plastics, metals, infused powders and even multiple materials can all be Rapid Prototyped to suit needs for models, guides, devices and custom implants.
- **Stereolithography** is an additive manufacturing process using a vat of liquid UV-curable photopolymer "resin" and a UV-laser to build parts one layer at a time. On each layer, the laser beam traces a cross-section pattern on the surface of the liquid resin. Exposure to UV-laser light cures and solidifies the pattern traced on the resin and adheres it to the layer below. The models are generally clear or solid in color. Anatomical landmarks can be "colored" within the model by manipulating the exposure times.
- **3D Printing** consists of an inkjet printing system using a Z Corp printer. The printer creates the model one layer at a time by spreading a layer of powder and then inkjet printing a binder into the cross-section of the part. The process is repeated until every layer is printed. This technology is the only one that allows for the printing of full color prototypes. Our models are also infused with a resin to be stone-like in durability.
- **Electron beam melting (EBM)** is a type of additive manufacturing for metal parts. The technology manufactures parts by melting metal powder layer per layer with an electron beam in a high vacuum. Unlike some metal sintering techniques, the parts are fully dense, void-free, and extremely strong. The materials are jetted in ultra-thin layers onto a build tray, layer by layer, until complete. Each layer is cured immediately, producing models that can be handled and used immediately, without post-curing

#### Main Services:

- **Orthopaedic Reconstruction:** Orthopedic services include the fabrication of surgical models in a variety of different materials to plan surgical procedures. In consultation with our biomedical engineers and technicians, surgical cutting, positioning and bending guides can be developed and fabricated, all customized to each individual situation.
- **Research and Development:** The 3D Medical Applications Center has the software and designers to support the medical center's research and special needs. Aside from medical models, devices can be fabricated to help with patient needs in occupational therapy and daily activities as well as concept models. Computer aided design software can be used to bring concepts to a working physical model. Whether it is a stand to hold a test tube at a specific angle or design of a handle on a cane to accommodate a patient, 3D MAC can provide the full spectrum design services.
- **Dental Surgery / Implants:** Models can be fabricated that indicate anatomical features such as the lingual nerve for better viewing of the proposed surgical area for orthognathic surgery, tumor resections, or dental Implant placement. Surgical guides for cutting, drilling, positioning, and bending of bones, plates and dental implants can be fabricated for any surgical plan.
- **Craniofacial Reconstruction:** Craniofacial services include the fabrication of surgical models in a variety of different materials to plan the surgical procedures. In consultation with our Biomedical Engineers and technicians, surgical cutting, positioning and bending guides can be developed and fabricated.



**Walter Reed  
National Military  
Medical Center**

## **MILITARY ADVANCED TRAINING CENTER**

### **From Injury to Independence**

Dedicated to the care and rehabilitation of America's sons and daughters recovering from injuries sustained in service, the Military Advanced Training Center (MATC) is a state-of-the-art facility located at the Walter Reed National Military Medical Center. Wounded, Ill and Injured Service Members, Retirees and Family Members use sophisticated prosthetics and cutting-edge athletic equipment to confirm pre-injury capabilities as they restore their sense of selves.

The MATC uses a Sports Medicine model which offers much of the same sports and exercise equipment as found at the finest sports rehabilitation training rooms across the country. Many of the same fitness drills practiced by professional athletes are replicated by the Service Members to work on core strength, balance and stability.

The total focus of MATC's expert staff is to match the drive and determination of these service members— build their strength, skills and confidence and return them to the highest level of physical, emotional and psychological functional ability. A major goal of the MATC is to enable the Service Members to make their own choices and not let their futures be dictated by the injuries sustained.

We serve active duty, retired and family members. Appointments are made by referral from the Amputee Clinic held by the Physical Medicine and Rehabilitation Service.

### **Amputee Physical and Occupational Therapy**

The MATC is setting world-class standards of care and providing the leading edge in rehabilitative as well as prosthetic care. The comprehensive effort of rehabilitation is where physical and occupational therapists follow the Service Members from their initial evaluations through their discharge from the hospital, course of outpatient rehabilitation and return to active duty or civilian life.

The Prosthetics Service, offering a full range of prosthetic and orthotic services, uses state of the art advanced prosthetic limb technology for design, milling, and production of prosthetic devices. Prosthetic devices are manufactured and fit and adjusted in the Orthotics and Prosthetics Service which is adjacent to the MATC to enable the Prosthetists to work closely with the physical and occupational therapists to ensure the best possible fit and utilization of the prosthetic devices.



### **Recreational Therapy & Adaptive Sports**

Walter Reed Bethesda recognizes the importance of recreational and adaptive sports to well-being and recovery. The Recreational Therapy staff coordinates a community re-integration program that offers a wide variety of experiences outside the clinic setting, including trips to public venues like shopping areas, movie theaters, restaurants and museums.

The program provides adaptive sports activities such as scuba diving, therapeutic horseback riding, basketball, cycling, running and golf, which allow the patients to be challenged and help provide meaning and purpose. Additionally the MATC offers a Service/Therapy Dog program, which is coordinated for the facility to make referrals for patients who request a service animal.

### **Computer Assisted Rehab Environment (CAREN)**

One of ten of its kind in the world, the CAREN provides a safe, controlled setting where patients can work on balance, coping with stress, using new prosthetics and other skills necessary to achieve functional real-life goals. Using specialized cameras and computers linked to sensors on their bodies, recovering Service Members interact with a virtual world projected onto a life-sized curved screen by shifting their weight on a motion platform with an embedded treadmill. More than 70 scenarios enable recovering Service Members to perform virtual activities such as steering a boat through buoys in a lake or replicate running up and down trails in woods, or walking through city streets without fear of falling.

### **Center for Performance and Clinical Research (CPCR)**

The Gait Lab of the Center for Performance and Clinical Research (CPCR) uses sophisticated motion analysis equipment (27 infra-red cameras, reflective markers and six force plates) to quantify the patients' movement. The information gained through motion analysis helps care providers to evaluate or modify physical therapy programs and prosthetic and orthotic components. The ultimate goal is to facilitate improvement of functional tasks such as walking, running and jumping.



**Walter Reed  
National Military  
Medical Center**

## Appendix B: Program Development and Implementation Timeline



### LON, NCOPE, and NAPP

LON



NCOPE



NAPP



**Due Date (all components): May 2020**

First Class: Fall 2020 (or Fall 2021, depending on graduate application cycle and building of lab)



Complete by	Task	Each <b>BOLD</b> word represents a page in your Research Report and Board.
Mar 1, 2019	LON	Finalize Budget Access Burning Glass data Get Letters of Support Finalize LON
Feb 2019	Consultant	Hire external consultant
	Space	Meet with Dean Block, Jeremy Ross, Colleen Noe
	VA affiliation	Talk with Colleen Noe, John Brothers (MHVAMC); Jason Highsmith (VA)
Apr 18, 2019	Academic Council	Submit LON to ETSU Academic Council: <b>present on Apr 25</b>
Spring – Sum 2019	NAPP	Develop syllabi
Fall 2019	NAPP	Learning Outcomes Program Requirements Academic Standards Curriculum Map Assessment and Evaluation Library Source Review Communication Plan Program of Study Recruitment Plan: Diversity Budget (Faculty Resources, Facilities and Equipment) Accreditation Faculty Vitae
Sept 2019	Board of Trustees	Submit LON
Nov 2019	THEC	Reviews LON: approval is good for 2 years
TBD	NCOPE	Work on Candidacy Application
TBD	NCOPE	Submit Candidacy Application
Dec 2019	NAPP	Enter into Curriculumlog

Jan 2020	College Curriculum Committee	Submit NAPP Attend curriculum meetings
Feb 2020	Graduate Curriculum Council	Submit NAPP Attend curriculum meetings
Apr 2020	THEC	Site Visit
July 2020	Academic Council	Approve NAPP
July 2020	ETSU President	Approve NAPP
Sept 2020	Board of Trustees	Approve NAPP
Nov 2020	THEC	Submit NAPP Present to Commissioners
TBD	SACS	Substantive Change Prospectus Site Visit
TBD	NCOPE	Site Visit
Summer 2021	State Building Commission	Approval to build P&O Lab
Summer 2022	Program Implemented	First Class Admitted

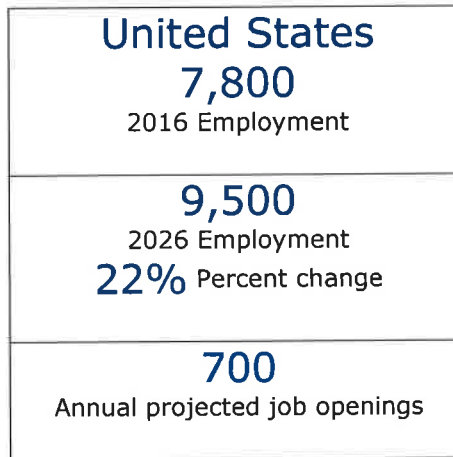


## Appendix C: Burning Glass Report

Data from Burning Glass Technologies (an analytics software company that provides real-time data on labor market trends), was obtained for Prosthetics and Orthotics. The following is a summary of the employment potential, competitive landscape, and market alignment.

### Employment Potential

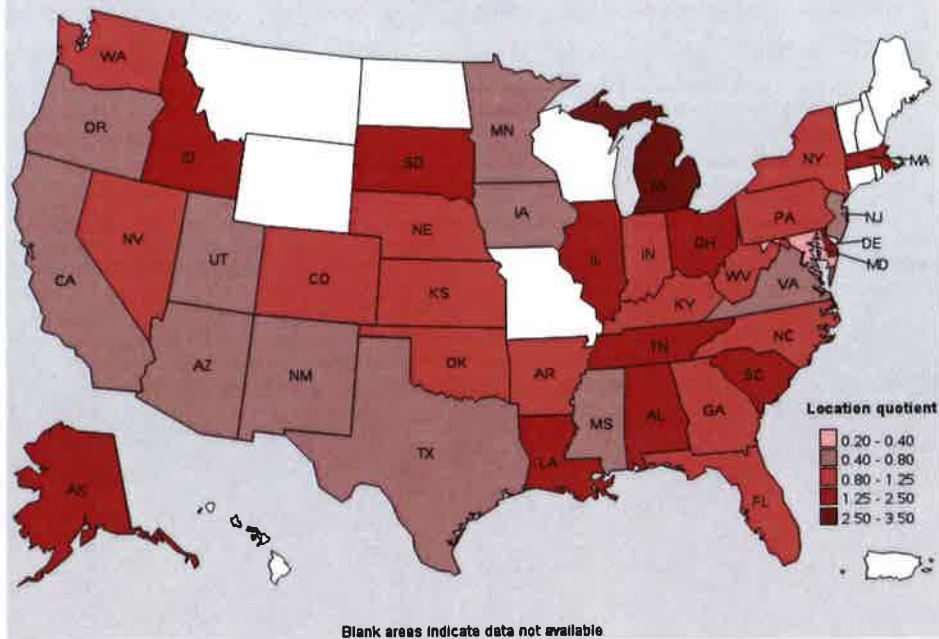
Data from Burning Glass and the Bureau of Labor Statistics indicate that the number of prosthetics and orthotics jobs is expected to grow over the next 7 years. A 22% projected employment growth increase is expected between 2016 and 2026. This is well above the 7% job growth for all occupations.



Additionally, location quotients provide relevant employment information. The location quotient is the ratio of the area concentration of occupational employment to the national average concentration. According to the BLS, the location quotient for states bordering Tennessee are less than one, indicating the occupation is less prevalent in the area than the national average. A total of seven bordering states, including VA, NC, KY, GA, MS, AR, and MO, have a location quotient below 1, which is well below the national average ([https://www.bls.gov/oes/current/oes291122.htm#\(9\)](https://www.bls.gov/oes/current/oes291122.htm#(9))).

These projections clearly indicate that this is the time for ETSU to enter the market. Analysis shows that the southeast is a top location for demand for P&O services, as shown in the mauve and pink states on the map below. These data indicate there is an increased demand in the region and southeastern U.S. market that ETSU can supply.

Location quotient of orthotists and prosthetists, by state, May 2017



### Competitive Landscape

Student interest and demand are growing with national conferral volumes increasing 151% between 2013 and 2017. According to Burning Glass, 216 P&O degree conferrals were made in 2017 in the nation, of which only 82 were from public institutions.

### MARKET SHARE BY INSTITUTION TYPE

■ Private ■ Public

PERCENTAGE





	Institution Type	Conferrals (2017)	Market Share (%)
	Private	134	62.04%
	Public	82	37.96%
	Total	216	100%
	<p>These data indicate there is not enough public institution participation to meet the market demand. Based on labor market needs, a public option is greatly needed to accommodate the increased demand for P&amp;O graduates. Public offerings should be at least 50% in order to meet the projected 22% projected employment growth. This translates to about 54 additional graduates needed each year from public institutions to supply the demand for P&amp;O services.</p> <p>ETSU would be the first university in Tennessee and the 13<sup>th</sup> university in the U.S. to offer a P&amp;O degree. It would be the only university in over 400 miles to offer the degree.</p>		
Market Alignment	<p>As a Local Governing Institution, ETSU is in the best position to impact the regional market. Of the top 10 national P&amp;O programs identified by Burning Glass, the University of Pittsburgh is the closest to ETSU and is over 400 miles away. ETSU would be a top competitor given our lower tuition and focus on interprofessional education and collaborative practice.</p>		

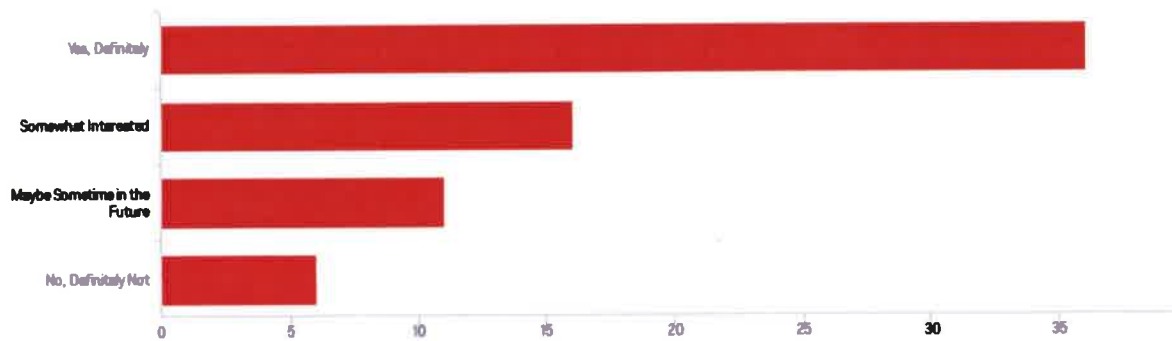
In summary, the key findings and program demand forecast for the P&O program in the southeast and nationally provide substantial support for the future sustainable need and demand for the proposed P&O program.

- **Student interest and demand are growing with national conferral volumes increasing 151% between 2013 and 2017.** In order to meet the state's projected employment growth between over the next 10 years, additional graduates are needed each year. P&O graduates will meet a positive labor market outlook over the next 10 years.
- **Competitive saturation is low for the P&O degree.** ETSU would be the first institution in Tennessee to have a P&O program. With only 12 P&O programs in the country, there would not be another program within 400 miles. Trends in the current competitor market indicate a need for a public and more affordable option for students.

## Appendix D: Feasibility Studies: Student and Employer Surveys

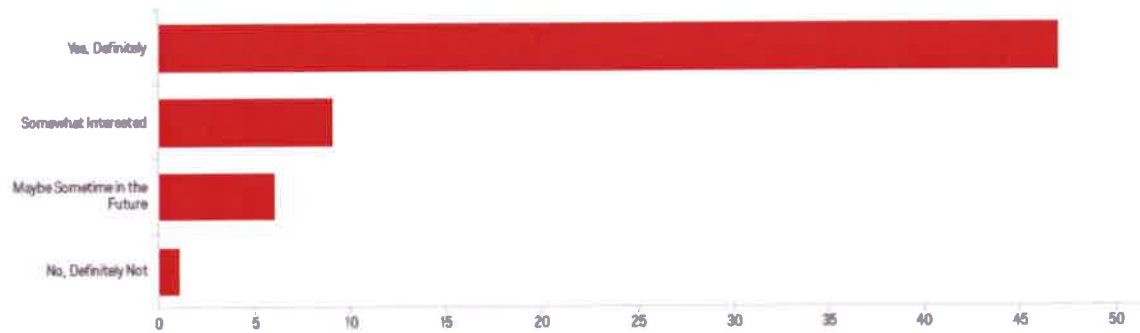
### Students

**Q3 - I am interested in pursuing a graduate degree.**



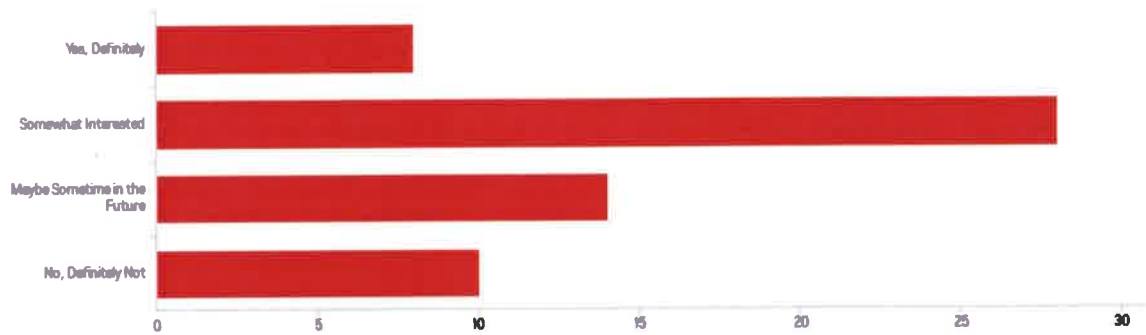
#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	I am interested in pursuing a graduate degree.	1.00	4.00	1.81	1.00	0.99	69

**Q4 - I am interested in pursuing a graduate degree in a health care related field.**



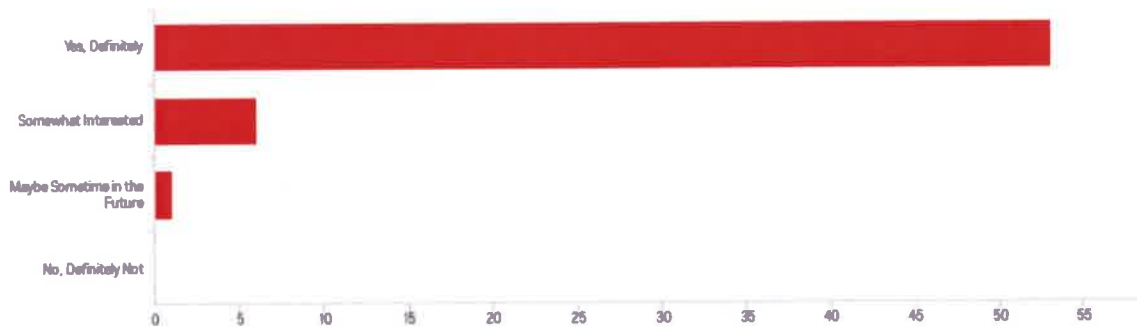
#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	I am interested in pursuing a graduate degree in a health care related field.	1.00	4.00	1.38	0.72	0.52	63

Q5 - I would be interested in a P&O master's degree program if offered at ETSU.



#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	I would be interested in a P&O master's degree program if offered at ETSU.	1.00	4.00	2.43	0.82	0.85	60

Q6 - I would prefer to attend a public university rather than a private university because of lower tuition.

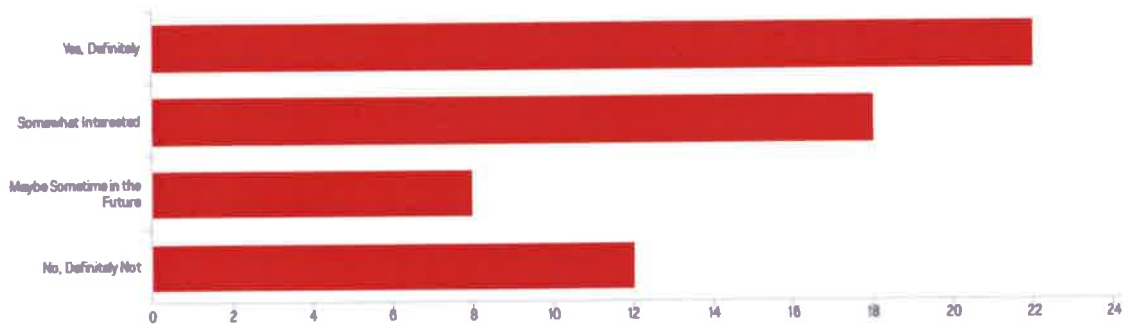


#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	I would prefer to attend a public university rather than a private university because of lower tuition.	1.00	3.00	1.13	0.39	0.15	60

Q7 - I am interested in applying to a P&O program at a university that has an IPE

program with opportunities to learn with students enrolled in other health care programs

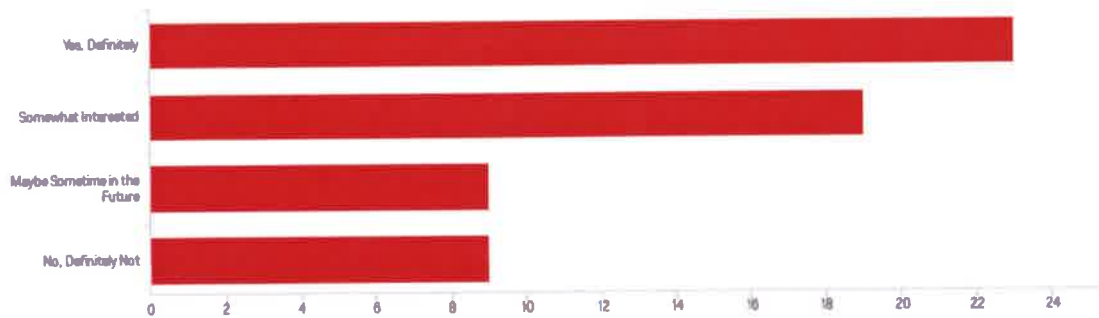
(i.e. medicine, nursing, pharmacy, PT, OT, etc.).



#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	I am interested in applying to a P&O program at a university that has an IPE program with opportunities to learn with students enrolled in other health care programs (i.e. medicine, nursing, pharmacy, PT, OT, etc.).	1.00	4.00	2.17	1.13	1.27	60

Q8 - I would be interested in a P&O master's program if I didn't get accepted into my first

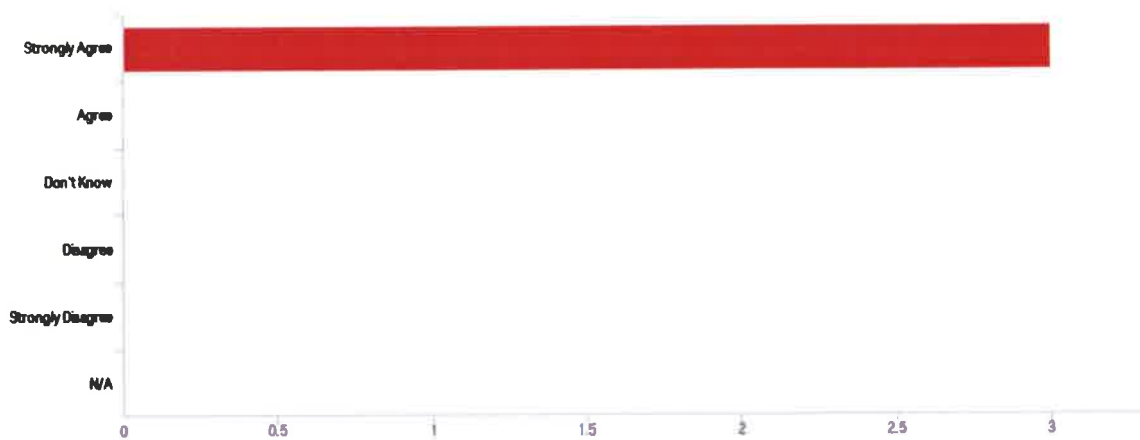
choice degree program (e.g. DPT, SLP, AuD, etc.).



#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	I would be interested in a P&O master's program if I didn't get accepted into my first choice degree program (e.g. DPT, SLP, AuD, etc.).	1.00	4.00	2.07	1.06	1.13	60

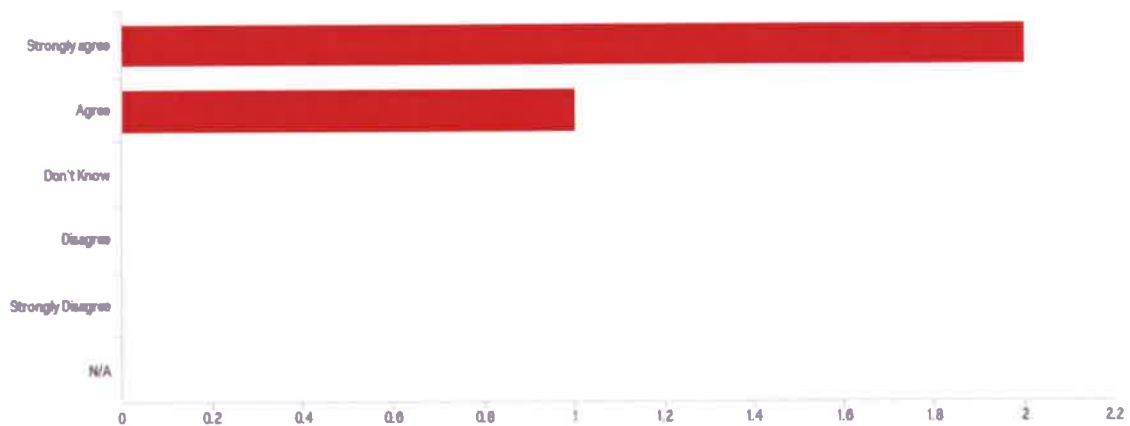
## Employer Survey

**Q2 - There is a need for certified Prosthetists and Orthotists (CPO).**



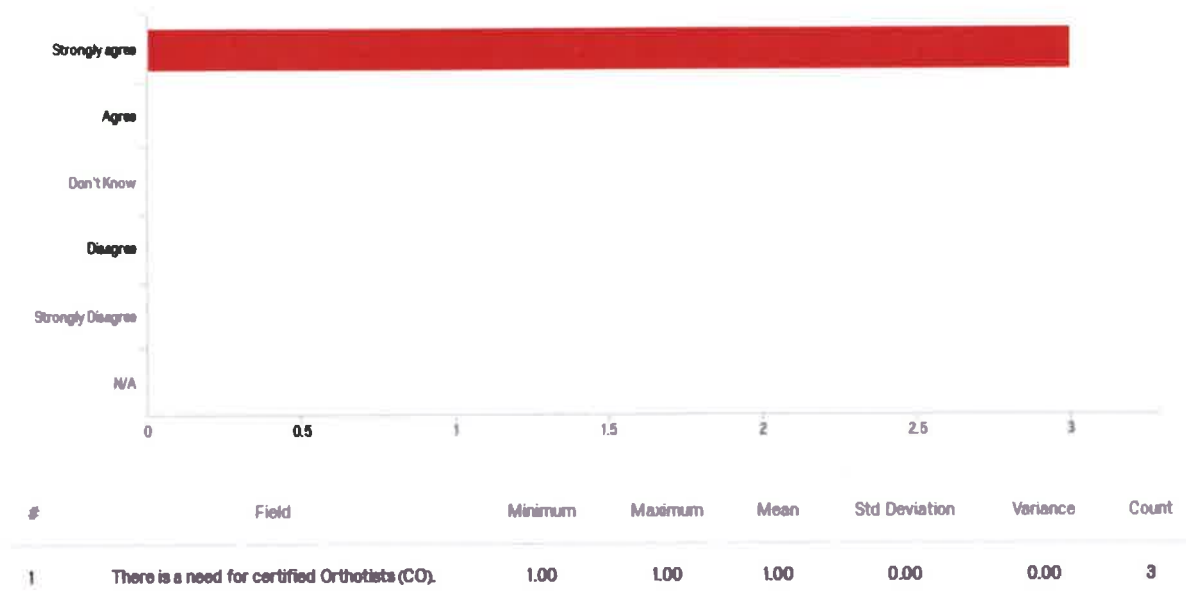
#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	There is a need for certified Prosthetists and Orthotists (CPO).	1.00	1.00	1.00	0.00	0.00	3

**Q3 - There is a need for certified Prosthetists (CP).**

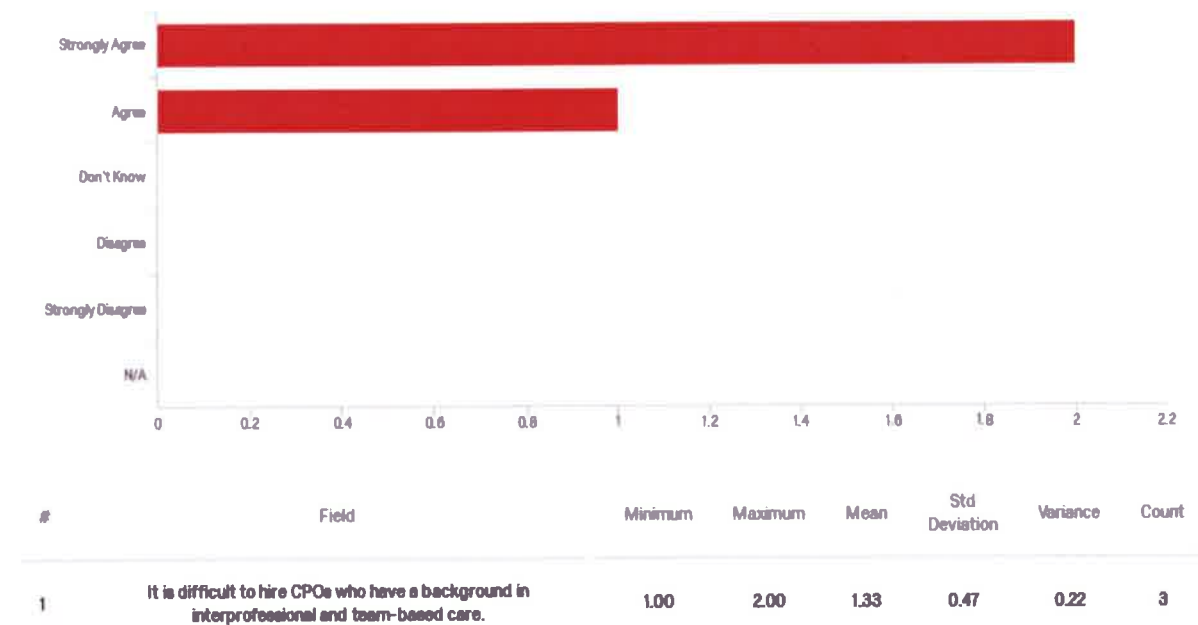


#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	There is a need for certified Prosthetists (CP).	1.00	2.00	1.33	0.47	0.22	3

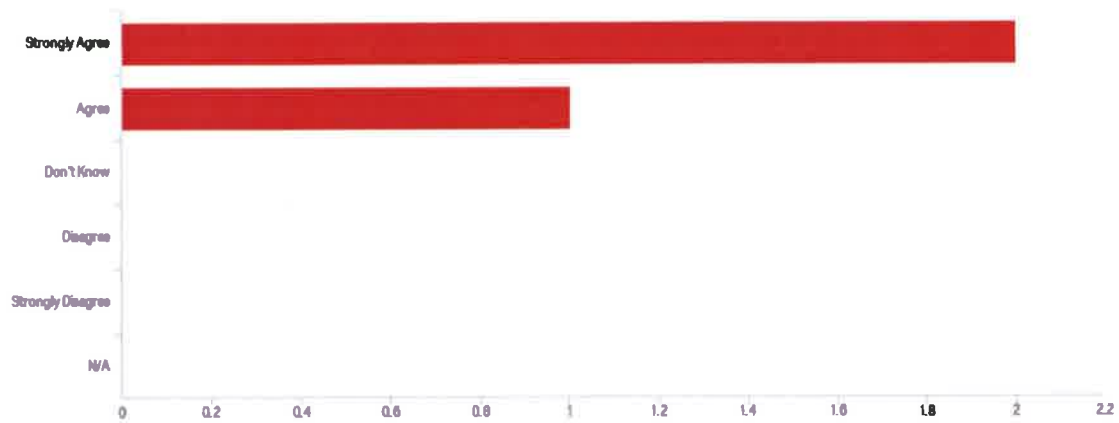
Q4 - There is a need for certified Orthotists (CO).



Q5 - It is difficult to hire CPOs who have a background in interprofessional and team-based care.

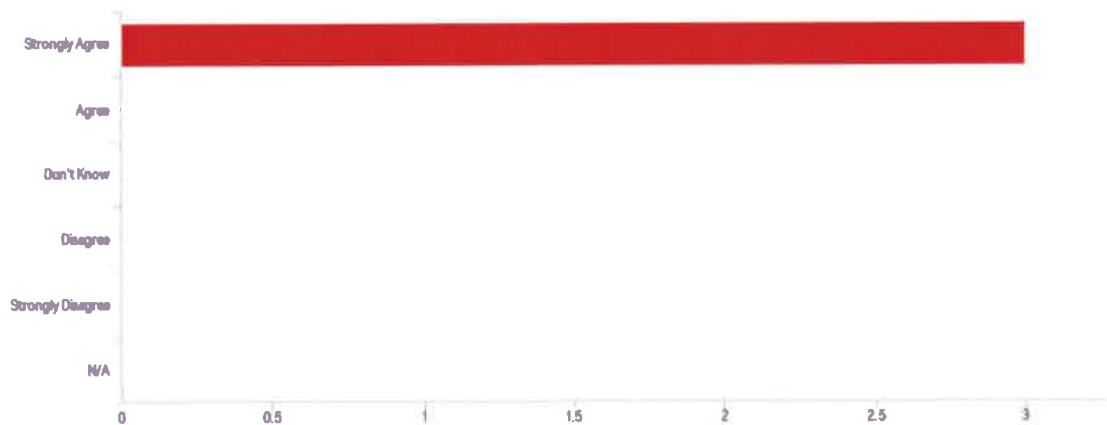


**Q6 - It is difficult to hire CPs who have a background in interprofessional and team-based care.**



#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	It is difficult to hire CPs who have a background in interprofessional and team-based care.	1.00	2.00	1.33	0.47	0.22	3

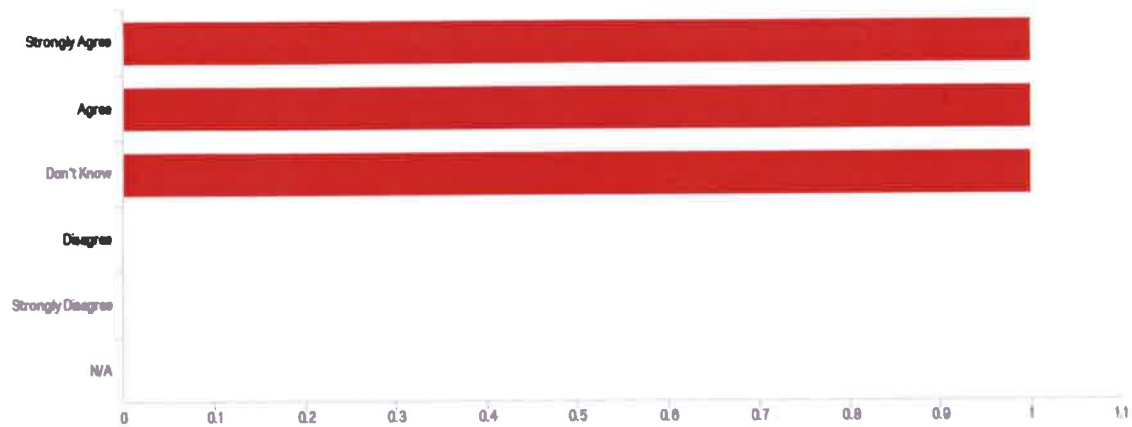
**Q7 - It is difficult to hire COs who have a background in interprofessional and team-based care.**



#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	It is difficult to hire COs who have a background in interprofessional and team-based care.	1.00	1.00	1.00	0.00	0.00	3



**Q10 - I would be interested in offering small clinical internships if ETSU developed the P&O master's degree.**



#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	I would be interested in offering small clinical internships if ETSU developed the P&O master's degree.	1.00	3.00	2.00	0.82	0.67	3

## Appendix E: Letters of Support

Dr. Phil Roe, U.S. Congress, 1<sup>st</sup> District, Chairman of Veteran's Affairs

Dr. Colleen Noe, Associate Director, Mountain Home Veterans Administration Medical Center

Mr. John Brothers, Certified Prosthetist and Orthotist, Mountain Home Veterans Administration  
Medical Center

Dr. Alan Meade, Director of Rehabilitation Services, Holston Medical Group

Mr. Jon Morris, Vice President, TalkBack Pediatric Therapy

Zac Smith, Certified Prosthetist and Orthotist, Victory Orthotics & Prosthetics

Chad McCracken, Certified Prosthetist and Orthotist, Excel Prosthetics & Orthotics

Dr. Dennis Depew, Dean of the College of Business and Technology, ETSU

DAVID P. ROE  
1ST DISTRICT, TENNESSEE  
VETERANS' AFFAIRS  
CHAIRMAN  
EDUCATION AND THE WORKFORCE

**Congress of the United States**  
**House of Representatives**  
Washington, DC 20515-4201

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UNION  
WASHINGTON

December 14, 2018

Dr. Don Samples  
Dean and Professor  
College of Clinical and Rehabilitative Health Science  
East Tennessee State University  
Lamb Hall  
Box 70643  
Johnson City, TN 37614

Dear Dean Samples:

I am writing this letter in support of a Master of Science degree in Prosthetics and Orthotics (P&O) you are proposing in your College of Clinical and Rehabilitative Health Sciences at East Tennessee State University (ETSU). There is a national shortage of prosthetic and orthotic practitioners, and with the two leading causes of limb loss, diabetes and cardiovascular disease so common in our aging population, their services are needed now more than ever as Americans continue living longer. The Bureau of Labor Statistics projects the need to employ orthotists and prosthetists will grow 22 percent from 2016 to 2026. Currently there are only 13 accredited P&O programs in the country.

East Tennessee boasts a variety of healthcare providers for both civilian and veteran populations. Knowing the future healthcare needs of the veteran population and the wonderful care Mountain Home VA Medical Center provides, it seems to me that a P&O program at ETSU could offer some mutually beneficial opportunities in future partnerships. This is just one of the many potential benefits I could see to having a program such as this, which would fit the mission of ETSU to train health care providers to serve the citizens of Northeast TN while helping to ensure high quality providers are available in our area.

I am hopeful that the P&O program at the College of Clinical and Rehabilitative Health Sciences will receive approval. I look forward to this program's implementation so that East Tennesseans continue to receive the best possible healthcare.

Sincerely,



David P. Roe, M.D.  
Member of Congress

KINGSFORD HIGHER EDUCATION CENTER  
306 REVERE STREET  
KINGSFORD, TN 37660  
PHONE: 423-247-8161  
FAX: 423-247-0119

WASHINGTON  
336 CANNON HOUSE OFFICE BUILDING  
WASHINGTON, DC 20515  
PHONE: 202-225-6386  
FAX: 202-225-5714

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[www.roe.house.gov](http://www.roe.house.gov)

ON THE CAMPUS OF WALTERS STATE  
1609 WALTERS STATE CC DRIVE, SUITE 4  
MORRISTOWN, TN 37813  
PHONE: 423-254-1400  
FAX: 423-254-1403



DEPARTMENT OF VETERANS AFFAIRS  
James H. Quillen VA Medical Center  
PO Box 4000  
Mountain Home, Tennessee 37684

TENNESSEE Outpatient Clinics: Knoxville LaFollette Morristown Rogersville Sevierville  
VIRGINIA Outpatient Clinics: Bristol Jonesville Marion Norton Vassant

October 18, 2018

In Reply Refer To: 621/001

Dr. Donald Samples, EdD, RRT, RPSGT  
Dean and Professor  
College of Clinical and Rehabilitative Health Sciences  
East Tennessee State University  
Johnson City, TN 37614

Dear Dr. Samples:

This letter is provided in support of a Master of Science in Prosthetics and Orthotics in the College of Clinical and Rehabilitative Health Sciences at East Tennessee State University (ETSU). The James H. Quillen VA Medical Center has a long history of partnership with many different Departments at ETSU. This collaboration will provide enhanced prosthetic and orthotic services to our Nations Veterans as well as provide quality education in a growing field with limited academic programs. Additionally, this program will fill a gap in healthcare services in East Tennessee.

The VA and the College of Clinical and Rehabilitative Health Sciences have a long and successful partnership through Audiology, Speech-Language Pathology, Physical Therapy, Clinical Nutrition and Social Work. This partnership would be a welcome addition to the ETSU – VA partnership.

For an additional information or questions, please contact me at (423) 926-1171, extension 7557 or at [Colleen.No@va.gov](mailto:Colleen.No@va.gov).

Sincerely,

Colleen M. Noe, Ph.D.  
Associate Director

**Department of  
Veterans Affairs**

# Memorandum

**Date:** October 30, 2018

**From:** John Brothers

**Subj:** Master of Science in Prosthetics and Orthotics

**To:** Don Samples

**Thru:** College of Clinical and Rehabilitative Health Services

The James H. Quillen VAMC is currently working on a proposal to establish and prosthetic and orthotic lab. One challenge that we anticipate is recruiting well trained and qualified prosthetists and orthotists. With the very limited number of certified education programs around the country for this discipline, recruitment can often be difficult. Establishing an academic program that would provide individuals with the opportunity to receive a Masters of Science in Prosthetics and Orthotics could be very beneficial to the Prosthetic and Orthotic industry.

As a certified Prosthetist/Orthotist, I have experienced the lack of qualified individuals in the industry. I have also experienced the lack of programs available to provide the educational opportunities needed.

The James H. Quillen VAMC would welcome the opportunity to work in conjunction with the East Tennessee State University on the possibility of establishing a joint prosthetic/orthotic lab and assisting in clinical educational opportunities. The VAMC proposed lab would be fully accredited by the American Board of Certification for Prosthetics and Orthotics and plans on offering residency positions.

We look forward to the opportunity for collaboration of this program and making an impact on the Prosthetic/Orthotic community.

John P. Brothers, CPO



4205 Hillsboro Road, Suite 317  
Nashville, Tennessee 37215  
615/269-5312  
FAX: 615/297-5852  
Email: [tpta@tptatn.com](mailto:tpta@tptatn.com)

**Dr. Don Samples, EdD, RRT, RPSGT**  
**Dean and Professor**  
**College of Clinical and Rehabilitative Health Sciences**  
**East Tennessee State University**  
**P. O. Box 70282**  
**Johnson City, TN. 37614**

**Dear Dr. Samples:**

On behalf of Holston Medical Group of the Tri-Cities, TN region as well as the Tennessee Physical Therapy Association, I would like to take this opportunity to lend my complete support for the potential new program of the Occupational Therapy Doctorate (OTD) and the Prosthetics & Orthotics program at East Tennessee State University. Wow, what a tremendous compliment to add to the College of Clinical and Rehabilitative Health Sciences that essentially completes the overall picture of all rehabilitative health science disciplines being represented in this entire community.

In my opinion, the two programs would certainly prepare students for entrance into two distinct, needed professional health care degrees in clinical areas such as Occupational Therapy and in Prosthetics/Orthotics for our community. The degrees for both would be labeled at the highest level of each of those disciplines. I am aware that Milligan College has the Master's Degree in Occupational Therapy (MSOT), but this is a private college. For ETSU to offer a Doctoral Degree in Occupational therapy, I believe it would be more cost effective and affordable for students to pursue this profession at a State College. It behooves ETSU to bring these programs on board that would certainly complement what is currently being provided at CCRHS in physical therapy, speech-language pathology, audiology, social work, and many others. I believe it would also provide students an opportunity to make decisions as to whether they would like to work in the different aspects of Occupational Therapy, whether that would be in the area of Hands/Upper Extremity/Orthopedics, or in Neurological Adults/Pediatrics, or in Geriatrics, or in the Psychology realm. The need is certainly there. As a Director of Rehab Services for a Multidisciplinary Physician Group, we are in need of OTs in our Rehab Clinics as we find them extremely valuable to the Rehab Team. The programs would provide students an opportunity to choose from two of the most interesting health care fields of choice.

I am also very much in favor of supporting a Prosthetics/Orthotics Program to this community as we do not have one close to the area. This would be a first for our area and that's exciting. I could certainly imagine the current clinics in our community working ever so closely and collaboratively with Prosthetist and Orthotist clinicians to enhance the care of patients in need of these services. Employment of orthotists and prosthetists is projected to grow 22% from 2016 to 2026, much faster than the average for all occupations. However, because it is a small occupation, the fast growth will result in only about 1,700 new jobs over the 10-year period. It is interesting to find that there are few states that have the Practitioner Programs. They have one

school in their states, except in Texas and California who has two programs. Tennessee does not have a program currently at all and this would be a first for our State. The large baby boom population is aging, and O & Ps will be needed because both diabetes and cardiovascular disease, two leading causes of limb loss, are more common among older people.

The OTD and P & O Programs would prepare students entering a specific field that is currently in need not only in the U.S., but definitely in our community. These particular two areas are a "must," because they belong in the traditional Medical Model and complete the Rehabilitation Team.

The programs would prepare potential healthcare professionals for patient interviews, a significant variety of treatment procedures and protocols in each discipline; provide the clinician with the foundation of technology and science behind each discipline. It will provide each person the knowledge of specific clinical work and also the quality and productivity standards behind each health care discipline.

The programs will provide a valuable addition and will complete the Rehabilitative Team of Providers in the College of Clinical Rehabilitative Health Sciences. As part of the Adjunct Faculty at ETSU in the Doctor of Physical Therapy Program, as well as the Chapter President of the Tennessee Physical Therapy Association, I am extremely excited about this opportunity as I believe it will serve to provide the education and preparation for those who are choosing clinical and rehabilitative positions and careers in Occupational Therapy and in Prosthetics/Orthotics for not only in our area, but also across the U.S.

If I can be of further assistance in this matter, please do not hesitate to contact me. Thank you for allowing me to comment on this great opportunity for ETSU.

Sincerely,



Dr. Alan V. Meade, PT, DScPT, MPH  
Director of Rehabilitation Services at HMG  
Chapter President—Tennessee Physical Therapy Association  
Adjunct Faculty in the ETSU DPT Program  
Work Phone: 423-578-1562  
[alan.meade@myhmg.com](mailto:alan.meade@myhmg.com)  
[almeadept@charter.net](mailto:almeadept@charter.net)



October 31st, 2018

Dr. Don Samples  
Dean and Professor  
College of Clinical & Rehabilitative Health Sciences  
East Tennessee State University  
Johnson City, TN 37614

Dear Dr. Don Samples,

I am writing to express my support for the new proposed Master's in Prosthetics and Orthotics degree through ETSU College of Clinical and Rehabilitative Health Sciences. As a member of the community and a business owner who services patients in need of Prosthetics and Orthotics, I can say that the ongoing need to recruit qualified candidates into the profession of Prosthetics is crucial to maintain a qualified workforce in our region. This would be a great partnership going forwards. I wish you the best of luck in moving forward with the program and if I can be of any assistance, please don't hesitate to ask.

Sincerely,

A handwritten signature in black ink, appearing to read "J. Morris", is written over a horizontal line.

Jon L. Morris  
Vice President/Business Manager  
TalkBack Pediatric Therapy





December 15, 2018

Dr. Don Samples  
ETSU College of Clinical & Rehabilitative Health Sciences  
P.O. Box 70282

Dear Dr. Don Samples,

I am writing to express my support for the new proposed Master's in Prosthetics and Orthotics degree through ETSU College of Clinical and Rehabilitative Health Sciences. I feel that this degree will help identify and train candidates for the profession. As a member of the community and a business owner of a Prosthetics and Orthotics, I can say that the ongoing need to recruit qualified candidates into the profession of Prosthetics is crucial to maintain a qualified workforce in our region. I wish you the best of luck in moving forward with the program and if I can be of any assistance, please don't hesitate to ask.

Sincerely,

Zach Smith  
2333 Knob Creek Road, #14  
Johnson City, TN  
(423) 461-3320

November 11 , 2018

Dr. Don Samples  
Dean and Professor  
East Tennessee State University  
Johnson City, TN 37614



Office of Chad McCracken, MS, CPO  
121 E. Ravine Rd, Suite 400  
Kingsport, Tennessee 37660  
  
423-732-7071  
cmccracken@excel-prosthetics.com

Dear Dr. Don Samples,

I am writing to express my support for a Master's in Prosthetics and Orthotics degree through ETSU College of Clinical and Rehabilitative Health Sciences. As a Certified Prosthetist-Orthotist and office manager for a local provider, I can attest to the growing need for qualified practitioners in the region and within the profession.

As a student, I was required to leave the region to obtain education in this wonderful profession. The number of accredited O&P education programs in the nation is very limited, however O&P education is completely absent in the region which has one of the highest health care needs in the nation. Tennessee schools offer accredited professional education programs in all areas of health care including physician, nursing, pharmacy, and physical and occupational therapy; however, Orthotist/Prosthetist education is not offered within the State of Tennessee. The closest O&P education program is over 400 miles away. This creates a barrier to obtaining education to serve in this profession.

As operational manager for our local clinics, I have difficulty recruiting practitioners simply due to the lack of certified professionals. The number of people living with amputation is predicted to double in the next 30 years. The Bureau of Labor Statics estimates the need for O&P practitioners to increase 22% in the next decade (much higher than average), which will create a lack of qualified providers if our education programs fail to respond to the increasing demand for professionals.

Please consider adding this needed educational offering to your College. This is an opportunity consistent with your program's stated Mission, Vision and Goals to meet the needs of the community as well as the professionals that serve those needs. Thank you for taking the time to consider this request. Please contact me as desired to have a more personal conversation concerning this topic.

Kindest regards,

A handwritten signature in black ink that reads 'Chad McCracken'. The signature is written in a cursive, flowing style.

Chad McCracken, MS, CPO



EAST TENNESSEE STATE  
UNIVERSITY

PO Box 70699  
Johnson City, TN 37614  
P 423-439-5489  
F 423-439-5274

College of Business and Technology  
Office of the Dean

March 27, 2019

Dean Samples,

I am writing this letter in support of the development of a Master's degree in Prosthetics & Orthotics in the College of Clinical and Rehabilitative Health Sciences. As we discussed in our previous meeting, the faculty in the Biomedical Engineering Technology program in the College of Business and Technology is interested in teaching (or including your students) in a/the Computer Assisted Design and 3D Printing course as part of the proposed P&O curriculum. This is an exciting opportunity for our faculty to engage in interprofessional education within an applied field in the health sciences. I look forward to working with you and your faculty as your curriculum development progresses.

Regards,

A handwritten signature in black ink, appearing to read 'Dennis Depew'.

Dennis Depew, Dean  
East Tennessee State University  
College of Business and Technology

ETSU.EDU

**Tennessee Higher Education Commission**  
**Attachment A: THEC Financial Projections**  
**CCRHS ETSU**  
**Orthotics & Prosthetics**

Seven-year projections are required for doctoral programs.  
Five-year projections are required for baccalaureate and Master's degree programs  
Three-year projections are required for associate degrees and undergraduate certificates.  
Projections should include cost of living increases per year.

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
<b>I. Expenditures</b>							
<b>A. One-time Expenditures</b>							
New/Renovated Space	\$ 250,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Equipment	500,000	-	-	-	-	-	-
Library	-	-	-	-	-	-	-
Consultants	10,000	-	-	-	-	-	-
Travel	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-
<b>Sub-Total One-time</b>	<b>\$ 760,000</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>
<b>B. Recurring Expenditures</b>							
<b>Personnel</b>							
<b>Administration</b>							
Salary						\$ -	\$ -
Benefits						-	-
<b>Sub-Total Administration</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>
<b>Faculty</b>							
Salary	\$ 90,000	\$ 227,700	\$ 234,531	\$ 241,567	\$ 248,814	\$ 256,278	\$ 263,967
Benefits	30,350	76,786	79,089	81,462	83,906	86,423	89,015
<b>Sub-Total Faculty</b>	<b>\$ 120,350</b>	<b>\$ 304,486</b>	<b>\$ 313,620</b>	<b>\$ 323,029</b>	<b>\$ 332,720</b>	<b>\$ 342,701</b>	<b>\$ 352,982</b>
<b>Support Staff</b>							
Salary		\$ 40,000	\$ 41,200	\$ 42,436	\$ 43,709	\$ 45,020	\$ 46,371
Benefits		20,350	20,961	21,589	22,237	22,904	23,591
<b>Sub-Total Support Staff</b>	<b>\$ -</b>	<b>\$ 60,350</b>	<b>\$ 62,161</b>	<b>\$ 64,025</b>	<b>\$ 65,946</b>	<b>\$ 67,924</b>	<b>\$ 69,962</b>
<b>Graduate Assistants</b>							
Salary	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Benefits	-	-	-	-	-	-	-
Tuition and Fees* (See Below)	-	-	-	-	-	-	-
<b>Sub-Total Graduate Assistants</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>
<b>Operating</b>							
Travel	\$ 4,000	\$ 7,000	\$ 8,000	\$ 8,000	\$ 8,000	\$ 8,000	\$ 8,000
Dues	5,000	2,000	2,000	2,000	2,000	2,000	2,000
Utilities	-	20,000	20,000	20,000	20,000	20,000	20,000
University Administration	-	77,486	161,347	166,187	171,173	176,308	181,597
Adjuncts	-	10,000	10,000	10,000	10,000	10,000	10,000
Other Lab Supplies	-	35,000	35,000	35,000	35,000	35,000	35,000
<b>Sub-Total Operating</b>	<b>\$ 9,000</b>	<b>\$ 151,486</b>	<b>\$ 236,347</b>	<b>\$ 241,187</b>	<b>\$ 246,173</b>	<b>\$ 251,308</b>	<b>\$ 256,597</b>
<b>Total Recurring</b>	<b>\$ 129,350</b>	<b>\$ 516,322</b>	<b>\$ 612,127</b>	<b>\$ 628,241</b>	<b>\$ 644,838</b>	<b>\$ 661,934</b>	<b>\$ 679,542</b>
<b>TOTAL EXPENDITURES (A + B)</b>	<b>\$ 889,350</b>	<b>\$ 516,322</b>	<b>\$ 612,127</b>	<b>\$ 628,241</b>	<b>\$ 644,838</b>	<b>\$ 661,934</b>	<b>\$ 679,542</b>

**\*If tuition and fees for Graduate Assistants are included, please provide the following information.**

Base Tuition and Fees Rate \$ - \$ - \$ - \$ - \$ - \$ - \$ -  
Number of Graduate Assistants

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
<b>II. Revenue</b>							
Tuition and Fees <sup>1</sup>	-	315,267	653,015	669,149	685,768	702,885	720,516
Institutional Reallocations <sup>2</sup>	889,350	201,055	(40,887)	(40,908)	(40,930)	(40,952)	(40,975)
Federal Grants <sup>3</sup>	-	-	-	-	-	-	-
Private Grants or Gifts <sup>4</sup>	-	-	-	-	-	-	-
Other <sup>5</sup>	-	-	-	-	-	-	-
<b>BALANCED BUDGET LINE</b>	<b>\$ 889,350</b>	<b>\$ 516,322</b>	<b>\$ 612,127</b>	<b>\$ 628,241</b>	<b>\$ 644,838</b>	<b>\$ 661,934</b>	<b>\$ 679,542</b>

**Notes:**

7 year total revenue/(loss)

(885,753.06)

**(1) Provide the funding source(s) for the new or renovated space**

Tuition and fee revenue will be generated in year two of the program. The Academic Health Science Center (AHSC) at ETSU has a \$50.00 per credit hour course fee for courses taught within the AHSC. An additional \$60 per credit hour for the P & O program will be added to cover lab supplies and expenses bringing to the AHSC Fee for P & O students to \$110 per credit hour. This course fee is earmarked for the college that generates the credit hours.

**(2) In what year is tuition and fee revenue expected to be generated and explain any differential fees. Tuition and fees include maintenance fees, out-of-state tuition, and any applicable earmarked fees for the program.**

Tuition and fee revenue will be generated in year two of the program. The Academic Health Science Center (AHSC) at ETSU has a \$50.00 per credit hour course fee for courses taught within the AHSC. An additional \$60 per credit hour for the P & O program will be added to cover lab supplies and expenses bringing to the AHSC Fee for P & O students to \$110 per credit hour. This course fee is earmarked for the college that generates the credit hours.

**(3) Please identify the source(s) of the institutional reallocations, and grant matching requirements if applicable.**

Institutional reallocations will be funded from the College of Clinical and Rehabilitative Health Sciences carryover and contingency funding.

**(4) Please provide the source(s) of the Federal Grant including the granting department and CFDA (Catalog of Federal Domestic Assistance) number.**

N/A

**(5) Please provide the name of the organization(s) or individual(s) providing grant(s) or gift(s).**

N/A

**(6) Please provide information regarding other sources of the funding.**

N/A